CLAIMS

1. A bi-stable microswitch including a pair of contacts and an armature movable between a first position and a second position to selectively break or make the pair of contacts, the armature being latched in the second position by a magnetic path including a permanent magnet and a magnetisable element having a first temperature, wherein the armature is resiliently biased towards the first position when latched, and is movable from the second position to the first position upon heating of the magnetisable element to above the first temperature.

2. A bi-stable microswitch according to claim 1, wherein the armature includes a first section having a first thermal expansion coefficient and a second section having a second thermal expansion coefficient causing movement of the armature from the first position to the second position upon heating of the armature.

3. A bi-stable microswitch according to claim 2, wherein the first section of the armature is at least partially formed of permalloy.

Sub A1 4. A bi-stable microswitch according to either one of claims 2 or 3, wherein the second section of the armature is at least partially formed of invar.

5. A bi-stable microswitch according to any one of the preceding claims, and further including a first heating device formed on or proximate the armature.

6. A bi-stable microswitch according to any one of the preceding claims, and further including a second heating device formed on or proximate the magnetisable element.

7. A bi-stable microswitch according to either one of claims 5 or 6, wherein one or more of the first and second heating devices includes an electrical resistance element.

8. A bi-stable microswitch according to any one of claims 1 to 4, wherein heat is applied to at least one of the armature and the magnetisable element by means of electromagnetic radiation.

9. A bi-stable microswitch according to claim 8, wherein microwave or other radiation is applied by non-contact means from a remote location.

10. A bi-stable microswitch according to any one of the preceding claims, wherein the magnetisable element is at least partially formed from a NiCu alloy, the composition of the alloy being adjusted to set the first temperature.

11. A bi-stable microswitch according to claim 1, wherein the pair of contacts are formed in or on an electrically isolating substrate.

12. A bi-stable microswitch according to claim 11, wherein the magnetisable element is formed in the substrate, and separated from the pair of contacts by an electrically isolating layer formed in or on the substrate.

13. A bi-stable microswitch according to claim 12, wherein the pair of contacts and the magnetisable layer are formed by micro machining techniques.

14. A bi-stable microswitch according to any one of the preceding claims, wherein the armature comprises a cantilever overhanging the pair of contacts.

15. A bi-stable microswitch according to claim 14, wherein the armature is formed by micromachining techniques.

16. An array of bi-stable microswitches, each microswitch having features according to any one of the preceding claims.

17. An array of bi-stable microswitches according to claim 16, wherein each of the microswitches is at least partly formed in a common substrate by micro machining techniques.